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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/594,780
Filing Date: September 29, 2006
Appellant(s): GULEVICH ET AL.

Jarrod Raphael

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 12, 2010 appealing from the Office action mailed November 4, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Patent 4,220,544	Scata et al.	9-1980
WO 96/32426	Zakharov et al.	10-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 18 and 22-23 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Scata et al. (US 4,220,554).

Regarding claims 18, and 22-23, Scata et al. discloses a method of preparing catalyst component for polymerizing alpha-olefins by reaction between (a) a Ti containing compound, (b) alkoxymagnesium halide with the structure as shown below (abstract):



in which $0 \leq n \leq 2$, R is an alkyl, aryl, cycloalkyl radical containing from 1 to 20 carbon atoms, X is halogen or a group OR' in which R' is an alkyl, aryl or cycloalkyl radical containing from 1 to 20 carbon atoms and is the same or different from R in formula (I).

and (c) an electron-donor compound (applicant's Lewis base such as ethers) (col.2, line 65). The molar ratio of a hydrocarbyl electron-donor compound relative to the Mg dihalide, corresponding to the p value as in the instant claims 18 and 22, is from 0.1 to 0.5 (abstract, and claim 9), the n value is $0 \leq n \leq 2$, R is C₁-C₂₀ (abstract, and claim 1).

The references differ from Applicant's recitations of claims by not disclosing identical ranges ($0.1 \leq n \leq 1.9$, $0.4 \leq p \leq 3$, R is C₁-C₂₀). However, the reference discloses "overlapping" ranges, and overlapping ranges have been held to establish prima facie obviousness (MPEP 2144.05).

Claims 20-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Scata et al. (US 4,220,554) as applied to claim 18 above, and further in view of Zakharov et al. (WO 96/32426).

Regarding claims 20-21 as discussed above, although Scata et al. teaches using ether as the electron-donor compound, he does not specifically disclose using cyclic ether comprising 3-5 carbon atoms such as THF as per applicant claim 20-21.

Zakharov et al. teaches a method for the preparation of an alkoxymagnesium halide/Ti compound catalyst system suitable for the polymerization of olefins in the presence of an inert solvent, i.e., dialkyl ether or THF (page 3, lines 19-27, and claim 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Scata and Zakharov to obtain the invention as specified in the claim 20-21, motivated by the fact that the resulting catalyst is very active for the polymerization, and eliminates additional activation catalyst steps (page 2, lines 8-10).

Since Scata and Zakharov both teach a catalyst system suitable for the polymerization of olefins comprising an alkoxymagnesium halide, Ti compound and electron donor, it would have a reasonable expectation of success. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

(10) Response to Argument

Argument I. Rejection of Claims 18 and 22-23 under 35 USC 103(a) over Scata et al.

Argument #1: Appellants rebut the Examiner's *prima facie* case of the overlapping range of Mg /Lewis Base ratio with Applicant's unexpected results (Appeal Brief, pages 7-10).

They are not found persuasive. The Examiner respectfully submits that the molar ratio of a hydrocarbyl electron-donor compound (applicant's Lewis Base) relative to the Mg dihalide, corresponding to the p value as in the instant claims 18 and 22, is from 0.1 to 0.5 as disclosed by Scata et al. in claim 9. It overlaps the recited claims. The references differ from Applicant's recitations of claims by not disclosing identical ranges ($0.4 \leq p \leq 3$). However, the reference discloses "overlapping" ranges, and overlapping ranges have been held to establish *prima facie* obviousness (MPEP 2144.05).

The evidence applicants relied on in Example 6 and comp. 7 in the Table 1 of the instant Specification is not commensurate in scope with the claims. Example 6 only demonstrates the polymerization results for one specific compound of $MgCl_n(OR)_{2-n}LB_p$, wherein $n=0.97$, $p=0.49$, $LB=THF$.

While the comparison data in Table 1 of the present specification may show a difference in polymerization yield between $p=0.49$ and $p=0.17$, the evidence only shows result for one specific adduct formula and aprotic Lewis base for a particular polymerization procedure, which is not commensurate with the broader range of formulas and aprotic Lewis bases as claimed. Further, Appellant has not provided any evidence that there are unexpected results of the claimed range of adducts using the polymerization procedure of Scata et al. The claimed invention is directed to Lewis base adducts, not a particular process of polymerization.

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of the unexpected results fails to outweigh the evidence of obviousness. Therefore, the rejection with respect to claims 18 and 22-23 under 35 U.S.C.103 (a) as set forth in the last office action stands.

Argument #2: Appellants argue that the Examiner has not explained *why*, absent Applicant's specification, one of ordinary skill in the art would have modified the disclosure of Scata, et al. to remove the aromatic electron-donor compounds therein for Applicant's currently and specifically claimed aliphatic, aprotic Lewis bases (Declaration, page 9)

The arguments are not found persuasive. As discussed in the office action mailed on March 11, 2009, not only aromatic compounds, the electron-donors (applicant's Lewis bases) taught by Scata et al. include ethers.

For example, Grignard agents used for prepare Mg compound formula (I) taught by Scata et al. are prepared in hydrocarbon/ethers mixture, such as a toluene/n-butyl ether mixture (col.7, lines 21-27). N-butyl ether is aliphatic ether, which meets the limitation of the instant application.

Argument II. Rejection Claims 20-21 under 35 USC 103(a) over Scata et al. in view of Zakharov et al.

Argument #1: Appellants argue that the catalyst taught by Zakharov et al. is a different compound than applicant's claimed (Declaration pages 12-13).

Appellant's arguments against the reference of Zakharov et al. are not found persuasive. Zakharov et al. teaches a method for the preparation of an alkoxymagnesium halide/Ti compound catalyst system suitable for the polymerization of olefins in the presence of an inert solvent, i.e., dialkyl ether or THF (page 3, lines 19-27, and claim 1).

Because, note that while Zakharov et al. do not disclose all the features of the present claimed invention, Zakharov et al. is used as a secondary reference, and therefore, it is not necessary for this reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely the use of THF as an electron donor and an inert solvent, and in combination with the reference of Scata et al. who teaches the same Mg compound as the instant application, discloses the presently claimed invention as set forth in the office action mailed on March 11, 2009. Therefor, the rejection stands.

Argument #2: Appellants argue that Zakharov et al. merely discloses that THF can be used as a solvent in a Grignard reaction. But Zakharov et al. does not teach THF can be used as an electron donor. The Examiner has not explained why one of ordinary skill in the art would have selectively picked inert solvent THF from the disclosure of

Zakharov et al. and substituted it for the aromatic electron-donor compound in Scata et al. (Declaration, page 13).

The arguments are not found persuasive. As discussed in the office action mailed on March 11, 2009 and discussion above, Scata et al. teaches the catalyst system containing applicant's Lewis base aliphatic ether (i.e. n-butyl ether), except he does not specifically disclose the use of THF as per applicant claim 21.

As discussed above, Zakharov et al. teaches the use of an inert solvent such as ether. In particular, THF is one of eight preferable ethers listed by Zakharov. This threshold (one in eight) in the prior art is able to one "at least envisage" the compound (THF). Therefore, THF taught by Zakharov provides sufficient disclosure to render obvious the use of THF as the ether in Scata et al.

Furthermore, Zakharov et al. indeed teaches the use of THF as an electron donor (line 16 on page 5 – line 28 on page 6, claims 1-3). Therefore in the Zakharov's catalyst system, THF plays a dual roles-acting as a solvent and an electron donor.

The motivation of combining the teaching of Scata et al. and Zakharov et al. is by the fact that the resulting catalyst is very active for the polymerization, and eliminates additional activation catalyst steps (page 2, lines 8-10).

Furthermore, since Scata and Zakharov both teach a catalyst system suitable for the polymerization of olefins comprising an alkoxy(magnesium halide, Ti compound and electron donor, it would have a reasonable expectation of success. Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/YUN QIAN/

Examiner, Art Unit 1793

July 13, 2010

/Melvin Curtis Mayes/

Supervisory Patent Examiner, Art Unit 1793

Conferees:

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